

Title (en)  
Method and related device for charging at the same voltage two or more capacitors connected in series

Title (de)  
Verfahren und entsprechende Vorrichtung zum Laden zweier oder mehrerer in Serie angeschlossener Kondensatoren bei gleicher Spannung

Title (fr)  
Procédé et dispositif associé pour charger à la même tension deux ou plusieurs condensateurs connectés en séries

Publication  
**EP 2015434 A2 20090114 (EN)**

Application  
**EP 08104603 A 20080702**

Priority  
IT VA20070061 A 20070709

Abstract (en)  
A pump capacitor (Cpump) or alternatively an energy storing inductor (Coil) is charged by coupling it to a voltage source (VIN), thereafter the charged pump capacitor (Cpump) or energy storing inductor (Coil) is connected in parallel to one of said capacitors or capacitance cell to be charged. The sequence of different connections of the pump capacitor (Cpump) or inductor (Coil) to the charge voltage source (VIN) and to the selected one of the capacitors of the series is actuated through a plurality of coordinately controlled switches (A,B,C,D,E) that establish distinct current circulation paths, according to a switched-capacitor or switched inductor technique, all driven by respective periodic control signals, generated from a master clock signal. In charging all the capacitance cells substantially at the same time, at every charge/discharge cycle it may be decided which capacitance or cell is going to be charged by connecting in parallel thereto the charged pump capacitor (Cpump) or charged inductor (Coil), depending on the voltages detected on each capacitance cell of a super capacitor.

IPC 8 full level  
**H02M 3/07** (2006.01); **H02J 7/00** (2006.01); **H02J 7/34** (2006.01)

CPC (source: EP US)  
**H02J 7/0019** (2013.01 - EP US); **H02J 7/345** (2013.01 - EP US); **H02M 3/07** (2013.01 - EP US)

Citation (applicant)  
FR 2838572 A1 20031017 - VALEO EQUIP ELECTR MOTEUR [FR]

Cited by  
CN104410118A; CN108292856A; CN103095126A

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA MK RS

DOCDB simple family (publication)  
**EP 2015434 A2 20090114**; **EP 2015434 A3 20140326**; IT VA20070061 A1 20090110; US 2009015211 A1 20090115; US 7893662 B2 20110222

DOCDB simple family (application)  
**EP 08104603 A 20080702**; IT VA20070061 A 20070709; US 16830208 A 20080707